

Tárgytematika / Course Description

Engineering Physics

AJNB_BMTA048

Tárgyfelelős neve /

Teacher's name: dr. Tóth-Nagy Csaba

Félév / Semester: 2020/21/1

Beszámolási forma /

Assesment: Folyamatos számonkérés

Tárgy heti óraszám /

Teaching hours(week): 1/1/0

Tárgy féléves óraszám /

Teaching hours(sem.): 0/0/0

OKTATÁS CÉLJA / AIM OF THE COURSE

The aim of the subject/course is to provide an introduction to the basic physical phenomenon related to mechanical engineering activities. After completing the course, students will be able to appreciate the challenges related to the motion of fluids and solid objects as well as their measurements.

TANTÁRGY TARTALMA / DESCRIPTION

Within the subject there will be project tasks to be completed by the students. In order to be able to complete these projects the students will be provided the required theoretical knowledge through modules so called Atoms. These are the following:

Atoms:

- Vectors, coordinate systems
- Importance of measurements in physics, Measurement systems, international system of units (SI)
- Basic concept of kinematics, different types of movement
- Newton's laws of motion. The law of conservation of energy and momentum
- Mechanics of system of particles and rigid bodies

Projects:

- Steam / water rocket (competition - pressure FIX)
- Road speed acceleration calculations (go-kart, fall test)
- Measurement data processing (Matlab, Excel) - smoothing, noise filtering, etc. (dynamometer / test bench measurement measurement)

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESSMENT'S METHOD

Evaluation will take place as follows: written or oral assessment of atoms (50%) AND class and project participation (50%).

Written or oral assessment of atoms (50%): will evaluate students' knowledge related to the course material. The assessment takes place throughout the semester.

Class and project participation (50%):

- Class participation (20%) will be evaluated based on presence and the quality of questions and comments during class time. Throughout the semester at least three (3) substantive questions are expected from each student during class or consultation time
- Successful completion of project work related to the course throughout the semester (30%)

Assessment is performed on a scale of five grades. Grades will be determined as follows:

- 0-51% fail,
- 52-61% passable,
- 62-71% satisfactory,
- 72-81% good,
- 82-100% excellent.

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL

Recommended literature:

- Russel C. Hibbeler: Engineering Mechanics: Statics and Dynamics, Pearson Education, 14th edition, 2015,
- Russel C. Hibbeler: Statics and Mechanics of Materials, Pearson Education, 5th edition, 2016.